Boom Breakaway System

Abstract of the Disclosure

Foldable boom inner wings are attached to a boom center frame through a rocker attached to a breakaway hydraulic cylinder pressurized to full stroke and connected to an accumulator. When a wing impacts an object, the impact load is transmitted through the fold cylinder and rocker into the breakaway cylinder. As the breakaway cylinder retracts to allow the wing to pivot, pressure builds in the system in three stages. First pressure builds along an accumulator pressure curve until a relief valve in the hydraulic system actives to initiate the second stage wherein oil is dumped through the relief valve. Thereafter, pressure is again allowed to build along the same accumulator curve to absorb impact hydraulically before the cylinder reaches full stroke. The staged pressure buildup prevents boom momentum from gaining and loads from increasing above the strength of the overall structure.